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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604

REPLY TO THE ATTENTION OF:

MEMORANDUM

SUBJECT: Compliance with TSCA ARARs at the Waukegan Harbor Hazardous Waste Site and Application for Alternative Disposal of PCB-Contaminated Sediments

FROM: Basil G. Constantelos, Director
Waste Management Division

TO: Valdas V. Adamkus
Regional Administrator

This application is being made to (1) request approval of an alternate disposal method for the PCB-Contaminated sediment at the Waukegan Harbor Hazardous Waste Site (the "Site") pursuant to 40 CFR §761.60(c)(5)(iii) and (2) request your concurrence in the determination that the remedial action at the Site satisfies applicable, relevant and appropriate TSCA regulations.

Background

Waukegan Harbor Hazardous Waste Site is located on the west shore of Lake Michigan in Waukegan, Illinois. It consists of property owned by Outboard Marine Corporation ("OMC") and parts of Waukegan Harbor, as more particularly described in Attachment 1. The Site involves PCB-contaminated sediment in Waukegan Harbor and PCB-contaminated soil and sediment on the north side of the OMC property. The source of the contamination was the OMC plant which formerly utilized PCB hydraulic fluids in their operations. Contamination ranges from 50 to over 10,000 ppm at the site. Based on sample data collected, it is estimated that approximately 300,000 pounds of PCBs contaminate nearly 50,000 cubic yards of sediment in the harbor, while approximately 800,000 pounds of PCBs can be found in roughly 175,000 cubic yards of soil and sediment on the OMC north property.

On May 15, 1984, a Record Of Decision (ROD) was signed that authorize the expenditure of approximately $21 million to implement a remedial action at the Site. The selected alternative as outlined in the ROD consisted of dredging the sediments in excess of 50 ppm PCB's from Waukegan Harbor and on-site containment of the dredge spoils along with the contaminated soil

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/s/ Original signed by
VALDAS V. ADAMKUS

in excess of 50 ppm PCB's from the OMC north property. Prior to containment, all "hot spot" materials (i.e. greater than 10,000 ppm PCB's) were to be solidified and transported off-site for disposal at a TSCA-approved landfill.

Due to protracted legal battles, design work for this remedy was halted in March 1985. For the next one and one half years, no further technical work was completed on this project. However, following the passage of the Superfund Amendments and Reauthorization Act (SARA) in October 1986, OMC officials approached the U.S. EPA in an effort to initiate negotiations for a cleanup of the entire site.

As a result of the settlement negotiations with OMC, an agreement in principle has been reached between the company, the U.S. EPA, and the State of Illinois. It is expected that this agreement will shortly be formalized in a Consent Decree between the parties. The attachments to the decree include a Remedial Action Plan which specifically outlines the technical details of the negotiated remedy. The remedy basically consists of the in-place containment (IPC) of the PCB-contaminated soil and sediment in three containment cells, the permanent treatment of selected "hot spot" soil and sediment, and the operation and maintenance of the containment cells.

Proposed Disposal Method

The negotiated remedy includes the in-place containment of soil and sediment and the permanent treatment of selected "hot spot" soil and sediment. Specifically, the "hot spot" material has been defined as sediment in Slip 3 with PCB contamination greater than 500 ppm and soil or sediment on the OMC north property with PCB levels greater than 10,000 ppm. In addition, permanent treatment has been defined as a process that removes at least 97 percent of the total PCB mass from the selected material or reduces soil and sediments to less than 500 ppm PCB's.

The in-place containment of the PCB-contaminated material will involve three containment cells constructed in the following manner:

1. Slurry walls with a minimum thickness of three feet and a maximum permeability of 1×10^{-7} will be installed around the three areas (East Cell for contamination on or near the OMC parking lot; West Cell for contamination near the oval lagoon, crescent ditch, and north ditch; and the Slip 3 cell for contaminated Upper Harbor sediments).

2. The slurry walls will be keyed into the hard pan glacial till which is expected to have a permeability of less than or equal to $1x10^{-7}$.

3. The cells will be closed and capped with a RCRA-type cap which incorporates a high density polyethylene (HDPE) liner.

4. The cells will include an extraction well system which will provide an inward hydraulic gradient thereby preventing the movement of PCB from the cells.

Specific design criteria for the cells are contained in the Work Plan For In-Place Containment. Details of the treatment can be found in the Work Plan For Treatment of Select Soil. The three cells will be operated and maintained by OMC. Details regarding the operation, maintenance, and monitoring of the containment cells can be found in the Operation and Maintenance Plan.

Statutory and Regulatory Authority

Section 121(d) of SARA requires remedial activities to be conducted in accordance with applicable, relevant and appropriate requirements of other Federal and State environmental laws. "Applicable" requirements are those where the remedial action satisfies all of the jurisdictional prerequisites of said law or regulation. "Relevant and appropriate" requirements mean those standards which, while not "applicable", address problems or situations sufficiently similar to those encountered at the Site that their use is well-suited.

Regulations promulgated under the Toxic Substances Control Act (TSCA) require that PCB's in concentrations exceeding 50 ppm be disposed only in a manner prescribed by regulation. The proposed remedy will involve disposal of dredged soils and sediments in excess of 50 ppm. Sediments from the Upper Harbor and Slip No. 3 will be dredged, and the most highly contaminated sediments (in excess of 500 ppm PCB's) will be treated by a chemical extraction process. The treated material (which is generally expected to contain less than 500 ppm PCB's) will be contained within the West Containment Cell, unless U.S. EPA approves some other disposal location, and the remaining sediments from the Upper Harbor will be contained in the Slip No. 3 Containment Cell. Similarly, highly-contaminated material in excess of 10,000 ppm from the North Ditch/Oval Lagoon area will be excavated, treated and placed in the West Containment Cell.

TSCA regulations are applicable to the disposal activities mentioned above. 40 CFR §761.60(a)(5) sets forth the method for disposal of dredged materials. The sediments from Waukegan Harbor and the excavated material from the North Ditch area (which areas are naturally submerged) would constitute dredged materials. Section 761.60(a)(5) requires disposal in an approved incinerator, an approved chemical waste landfill or, upon application to the Regional Administrator, pursuant to an alternative disposal method. The alternate disposal method may be approved on a showing that, "based on technical, environmental and economic considerations" disposal in an incinerator or chemical waste landfill is not reasonable and appropriate, and that the alternate disposal method will provide adequate protection to health and the environment.

Implementation of the negotiated IPC remedy will result in an environmental situation which will be substantially improved over the existing conditions. The risks to the public and the environment will be reduced dramatically as a result of the cleanup. In addition, a comparison of this IPC remedy to the ROD remedy shows that the long term risk associated with the dewatering in the ROD remedy is virtually eliminated by the IPC remedy.

Evaluations conducted by the U.S. EPA in 1983 and by OMC consultants in 1986 show that it is not economically feasible to incinerate the PCB-contaminated material at either an off-site facility or by using a transportable incinerator on-site. Due to the substantial volume of material involved, the estimated costs for incineration would be in the hundreds of millions of dollars.

Site selection studies conducted by the U.S. Army Corps of Engineers identified only one upland location in the Waukegan area that would be a feasible location for building an approved TSCA landfill. An evaluation by OMC shows that it is not economically desirable to utilize that location. In addition, the study performed by an OMC consultant suggests that the use of an off-site location for the disposal of all PCB-contaminated material will result in substantially increased risk levels to the general public.

Both the U.S. EPA and OMC believe that due to the complexities involved in landfill siting in the State of Illinois, it is unlikely that any new landfill could be constructed without a delay of 12 to 24 months. Both parties agree that it is more desirable to achieve a cleanup sooner than to delay work for an indeterminate period of time to obtain siting approval.

For the foregoing reasons, disposal in an incinerator or chemical water landfill is not considered reasonable or appropriate.

Furthermore, the proposed remedy will provide adequate protection to health and the environment. The IPC remedy is a sound technical solution to a long-standing environmental problem. Slurry walls are proven technologies, and when used in conjunction with a properly designed RCRA-type cap and the low permeability subsurface material which exists in the area, the cells should provide adequate containment of the contaminated material and adequately protect human health and the environment. In addition, the use of an extraction system to control the water level within the cells will produce an inward hydraulic gradient which should eliminate the movement of PCB's from the area.

Relevant and Appropriate Standards

In addition to the disposal of the excavated and dredged PCB-contaminated material discussed above, the three containment cells will enclose PCB-contaminated soil and sediment. While TSCA regulations are applicable to the disposal of PCB-contaminated soil and sediment which will be excavated and placed in the IPC units, they are not applicable to the containment of this in-place of this material since PCB's were disposed prior to the effective date of TSCA and will not be disturbed as part of this remedy. Section 121(d) of SARA requires, however, that the Agency consider whether the TSCA regulations, even though not applicable, may be relevant and appropriate to the in-place containment of PCB-contaminated material. The following criteria, which relate to construction and operation of a PCB chemical waste landfill as set forth in 40 CFR §761.75(b) are potentially relevant and appropriate to the remedial action:

1. A PCB chemical waste landfill must be located in a relatively impermeable formation or in soils with a thickness of four feet which exhibit certain specified characteristics as to permeability and soil characteristics (If these criteria are not met a synthetic liner is required.)

2. The bottom of the landfill should be 50 feet above the historic high groundwater table.

3. Provisions should be made for protection against floods.

4. The landfill should be located in an area of low to moderate topography.

5. It should be equipped with a groundwater and surface water monitoring system.

6. It should have a leachate monitoring system.

7. It should have an operation plan.

8. It should have adequate supporting facilities.

These requirements establish criteria for the siting, design and operation of PCB chemical landfills. The purpose of the siting requirements are intended to address siting of new PCB-landfills. In the present case, however, the Site contains previously-disposed PCB's, and the purpose of the remedial action is to contain this material. Accordingly, the siting requirements, in particular the requirements that the landfill bottom be fifty feet from the groundwater and the topography requirement, while relevant, are not considered to be appropriate for the purposes of this remedial action.

Certain of the requirements set forth above are intended to regulate the operation of a PCB chemical waste landfill. These include the requirements for an operation plan, supporting facilities, groundwater monitoring, leachate collection and flood protection measures. The proposed remedy will include an Operations and Maintenance Plan which will include provisions for groundwater monitoring. It will also include an extraction system which will serve to maintain an inward hydraulic gradient and will extract leachate from within the cell. In addition, it is supported by a wastewater treatment facility for treatment of the extracted water. Further, the containment cells will be closed with a RCRA-type cap in accordance with the approved construction schedule. Closure in accordance with these procedures, together with Operation and Maintenance activities under the approved O&M Plan will address the continuing maintenance needs. Therefore, the proposed remedy satisfies those standards which are relevant and appropriate to the remedial action.

The proposed remedy will meet the requirement that the soil underlying the containment cells exhibit the specified characteristics regarding permeability. These are included in the design criteria for construction of these cells.

Recommendation

Based upon these facts and information contained in the referenced documents, the Office of Superfund recommends that the Regional Administrator approve the alternate disposal method for

the PCB-contaminated sediments at the OMC/WH Superfund Site pursuant to his authority as outlined in 40 CFR §761.60(a)-(5)(iii). It is also recommended that you concur in the determination regarding TSCA ARAR's as described herein.

cc: Covington
Sanders
Schaefer
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Franklin
Reed
Connel
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Meldgin